

UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Egbert Classen et al.
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Group Art Unit: 1711
Examiner: Jason Paul Riggleman
Title: DISHWASHER

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Commissioner for Patents
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APPEAL BRIEF

Pursuant to 37 CFR 1.192, Appellants hereby file an appeal brief in the above-identified application. This Appeal Brief is accompanied by the requisite fee set forth in 37 CFR 1.17(f).

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(1) REAL PARTY IN INTEREST

The real party in interest is BSH Bosch und Siemens Hausgeräte GmbH.

(2) RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences that will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) STATUS OF CLAIMS

Claims 11-21 are pending and are the basis of this appeal. Claims 1-10 were canceled in the June 7, 2006 Preliminary Amendment. Claims 11 and 21 are independent.

(4) STATUS OF AMENDMENTS

The pending claims identified in the Claims Appendix correspond to the claims entered following the submission of the June 11, 2010 Amendment.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a dishwasher that allows washed dishes located in the washing container to be dried effectively and efficiently from an economic perspective so as to keep the energy consumption as low as possible in spite of a very good drying performance.

The dishwasher 1 according to independent claim 11 includes: a washing container 2 ; a device for washing items retained in the washing container using rinsing liquid liquor; a medium-retaining container 12 for retaining therein a medium 16 that is at least one of a vaporisable medium and a sublimable medium, whereby the medium retained in the medium-retaining container is subjected to at least one of an evaporation step and a sublimation step (page 4, lines 16-24), whereby the medium is cooled; and a sorber 10 with reversibly dehydratable material 11, the sorber and the medium retaining container being communicated with one another such that gas exchange takes place therebetween (page 4, lines 26-28), the reversibly dehydratable material acting to absorb vapor that has flowed from the medium-retaining container into the sorber, whereupon the reversibly dehydratable material transforms from a dehydrated state into a hydrated state and the reversibly dehydratable material being restorable from a hydrated state into a dehydrated state by the application of thermal energy to the reversibly dehydratable material, the sorber being operable, on the one hand, to directly dry items retained in the washing container and being operable, on the other hand, to provide the thermal energy used for desorbing the sorber such that at least one of the rinsing liquor and the items located in the washing container are heated thereby (page 5, line 27 – page 6, line 9).

The heating of the air in the container and especially in the sorber is largely sufficient to adequately heat the rinsing liquor and/or the dishes. Thus, any further heating can be largely dispensed with and the energy used for desorption can be almost completely used for heating the rinsing liquor and/or the dishes apart from the small amount of energy required to

overcome the binding forces between water and reversibly dehydratable material. Using the sorber features of the present invention, washed dishes can be effectively dried with a low heat content, e.g. plastic parts because no heating is required in the partial program step preceding the "dry" partial program. The rapid drying also allows severely reduced bacteria growth or even completely prevents bacteria growth which advantageously affects the hygiene conditions on the cleaned dishes.

Independent claim 21 recites a dishwasher comprising: a washing container; a device for washing items retained in the washing container using rinsing liquor; a medium-retaining container for retaining therein a medium that is at least one of a vaporisable medium and a sublimable medium, whereby the medium retained in the medium-retaining container is subjected to at least one of an evaporation step and a sublimation step (page 4, lines 16-24), whereby the medium is cooled; and a sorber with reversibly dehydratable material, the sorber and the medium retaining container being communicated with one another such that gas exchange takes place therebetween (page 4, lines 26-28), the reversibly dehydratable material acting to absorb vapor that has flowed from the medium-retaining container into the sorber, whereupon the reversibly dehydratable material transforms from a dehydrated state into a hydrated state and the reversibly dehydratable material being restorable from a hydrated state into a dehydrated state by the application of thermal energy to the reversibly dehydratable material, the sorber providing the thermal energy used for desorbing the sorber such that the rinsing liquor and the items located in the washing container are heated thereby (page 5, line 27 – page 6, line 9).

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

(a) Whether claims 11-21 are unpatentable under 35 U.S.C. § 103(a) over Hesse (German Patent Publication No. DE3741652) in view of Tarplee et al.

(7) ARGUMENT

(a) Claims 11-21 are NOT unpatentable under 35 U.S.C. § 103(a) over Hesse (German Patent Publication No. DE3741652) in view of Tarplee et al.

The grounds of rejection acknowledge that Hesse does not teach the use of a sorber and a liquid to create a heat-pump in the cooling/heating duct of the air loop and relies on the disclosure of Tarplee et al., concluding that it would have been obvious to one of ordinary skill in the art the time of the invention to modify Hesse with Tarplee et al. to create a dishwashing machine with a closed-loop drying system which saves energy to achieve the expected result (citing Tarplee et al., at pg. 2, lines 23-25).

Further, in the Response to Arguments at page 2 of the Final Office Action, the grounds of rejection further state that in response to Appellants' arguments provided in the June 11, 2010 Amendment that the argument "is a mere allegation of patentability" ... and a "general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references."

Additionally, Appellants respectfully submit that Hesse discloses the use of a heat exchanger within a dishwasher for reducing moisture in air in a closed system after the dishes have been washed, and the cleaning water drained. This use for reducing moisture and time after the dishes have been washed teaches away from the assessment in the Advisory Action. Appellants respectfully submit that there is no disclosure, nor would the Hesse heat exchanger be applied to heating rinsing liquid with the *thermal energy used for desorbing the claimed sorber* as claimed. As such, there is no motivation to modify Hesse with the features of Tarplee et al. Notwithstanding the lack of motivation, neither Hesse nor Tarplee et al. are designed for or suggest this claimed feature. Appellants respectfully submit that this feature is recited in, for example, claim 11 and 21 as “a sorber with reversibly dehydratable material, the sorber and the medium retaining container being communicated with one another such that gas exchange takes place therebetween, the reversibly dehydratable material acting to absorb vapor that has flowed from the medium-retaining container into the sorber, whereupon the reversibly dehydratable material transforms from a dehydrated state into a hydrated state and the reversibly dehydratable material being restorable from a hydrated state into a dehydrated state by the application of thermal energy to the reversibly dehydratable material, the sorber being operable, on the one hand, to directly dry items retained in the washing container and being operable, on the other hand, to provide the thermal energy used for desorbing the sorber such that at least one of the rinsing liquor and the items located in the washing container are heated thereby.” Accordingly, Appellants respectfully submit that claims 11-21 are allowable over the combination of Hesse and Tarplee et al.

(8) CONCLUSION

In view of the foregoing discussion, Appellants respectfully request reversal of the Examiner's rejections.

Respectfully submitted,

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CLAIMS APPENDIX

1 – 10. (Canceled)

11. (Rejected) A dishwasher comprising:

a washing container;

a device for washing items retained in the washing container using rinsing liquid liquor;

a medium-retaining container for retaining therein a medium that is at least one of a vaporisable medium and a sublimable medium, whereby the medium retained in the medium-retaining container is subjected to at least one of an evaporation step and a sublimation step, whereby the medium is cooled; and

a sorber with reversibly dehydratable material, the sorber and the medium retaining container being communicated with one another such that gas exchange takes place therebetween, the reversibly dehydratable material acting to absorb vapor that has flowed from the medium-retaining container into the sorber, whereupon the reversibly dehydratable material transforms from a dehydrated state into a hydrated state and the reversibly dehydratable material being restorable from a hydrated state into a dehydrated state by the application of thermal energy to the reversibly dehydratable material, the sorber being operable, on the one hand, to directly dry items retained in the washing container and being

operable, on the other hand, to provide the thermal energy used for desorbing the sorber such that at least one of the rinsing liquor and the items located in the washing container are heated thereby.

12. (Rejected) The dishwasher according to claim 11, and further comprising an exchange pipe interconnecting the medium-retaining container and the sorber with one another such that gas exchange takes place therebetween, the exchange pipe having a valve for selectively permitting the flow of vapor through the exchange pipe.

13. (Rejected) The dishwasher according to claim 11, wherein the medium-retaining container is communicated via an outlet with the washing container, the sorber is communicated with the washing container via an inlet, and further comprising a fan for guiding air from the washing container to the medium-retaining container, whereupon the air is thereby cooled upon contact with the cooled medium in the medium-retaining container, and for subsequently guiding the cooled air into contact with the reversibly dehydratable material in the sorber, whereupon the air is heated, and for thereafter guiding such heated air back into the washing container through the inlet.

14. (Rejected) The dishwasher according to claim 11, wherein first the medium-retaining container and then the sorber are arranged in the direction of flow of the air from the washing

container to allow heat exchange between the flowing air and the medium in the medium-retaining container as well as the reversibly dehydratable material in the sorber.

15. (Rejected) The dishwasher according to claim 12, and further comprising an electric heating element located in the sorber for desorption of the reversibly dehydratable material.

16. (Rejected) The dishwasher according to claim 15, wherein, when the electric heating element is switched off and the valve is opened, the medium is vaporised or sublimed in the medium-retaining container and the medium-retaining container with medium is cooled by the latent heat of evaporation, the medium vapour is passed via the exchange pipe to the sorber and the medium vapour is absorbed by the reversible dehydratable material in the sorber whereby the sorber is heated with reversibly dehydratable material.

17. (Rejected) The dishwasher according to claim 15, wherein, when the electric heating element is switched on for desorbing the sorber, the sorber is heated and, when the valve is opened, the medium bound in the sorber is evaporated, the medium vapour released in the sorber is passed to the medium-retaining container by means of the exchange pipe and the medium vapour is condensed in the medium-retaining container whereby the medium-retaining container with medium is heated as a result of the latent heat of evaporation.

18. (Rejected) The dishwasher according to claim 16, wherein the medium-retaining container is communicated via an outlet with the washing container, the sorber is communicated with the washing container via an inlet, and the medium-retaining container and the sorber are communicated with one another by an air guiding pipe such that air is guided from the washing container to the medium-retaining container, whereupon the air is thereby cooled upon contact with the cooled medium in the medium-retaining container, the cooled air subsequently guided into contact with the reversibly dehydratable material in the sorber, whereupon the air is heated, and thereafter such heated air is guided back into the washing container through the inlet, and, during a "drying" partial program step, air from the washing container is passed through the air guiding pipe and back into the washing container, wherein the air at the medium-retaining container is cooled and the moisture contained in the air is thereby at least partly condensed and the air at the sorber is heated to increase the moisture absorption capacity of the air.

19. (Rejected) The dishwasher according to claim 17, wherein the medium-retaining container is communicated via an outlet with the washing container, the sorber is communicated with the washing container via an inlet, and the medium-retaining container and the sorber are communicated with one another by an air guiding pipe such that air is guided from the washing container to the medium-retaining container, whereupon the air is thereby cooled upon contact with the cooled medium in the medium-retaining container, the cooled air

subsequently guided into contact with the reversibly dehydratable material in the sorber, whereupon the air is heated, and thereafter such heated air is guided back into the washing container through the inlet, and, during a "drying" partial program step using rinsing liquor to be heated, air from the washing container is passed through the air guiding pipe and back into the washing container again where the air at the container is heated and that at the sorber is heated.

20. (Rejected) The dishwasher according to claim 18 and further comprising means for flowing water formed at the medium-retaining container by condensation from the air flowing in the air guiding pipe into at least one of the washing container and a separate container.

21. (Rejected) A dishwasher comprising:

a washing container;
a device for washing items retained in the washing container using rinsing liquor;
a medium-retaining container for retaining therein a medium that is at least one of a vaporisable medium and a sublimable medium, whereby the medium retained in the medium-retaining container is subjected to at least one of an evaporation step and a sublimation step, whereby the medium is cooled; and
a sorber with reversibly dehydratable material, the sorber and the medium retaining container being communicated with one another such that gas exchange takes place therebetween, the reversibly dehydratable material acting to absorb vapor that has flowed

from the medium-retaining container into the sorber, whereupon the reversibly dehydratable material transforms from a dehydrated state into a hydrated state and the reversibly dehydratable material being restorable from a hydrated state into a dehydrated state by the application of thermal energy to the reversibly dehydratable material, the sorber providing the thermal energy used for desorbing the sorber such that the rinsing liquor and the items located in the washing container are heated thereby.

EVIDENCE APPENDIX

None

RELATED APPEALS APPENDIX

None